

SILICOALUMINOPHOSPHATE MOLECULAR SIEVE

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[0001] This application claims priority to U.S. Provisional Patent Application No. 60/272,061, filed March 1, 2001, and U.S. Patent Application No. 09/924,016, filed August 7, 2001, ^{Pat. 6,812,372} which is fully incorporated herein by reference.

Field of the Invention

[0002] This invention relates to new silicoaluminophosphate molecular sieves, to methods of making them and to their use in a method of making an olefin product by contacting these silicoaluminophosphate molecular sieves with an oxygenate feedstock. In particular, this invention relates to silicoaluminophosphate molecular sieves comprising at least one intergrown phase of AEI and CHA molecular sieves.

Background of the Invention

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[0003] Silicoaluminophosphate (SAPO) molecular sieves contain a three-dimensional microporous crystal framework structure of $[\text{SiO}_2]$, $[\text{AlO}_2]$ and $[\text{PO}_2]$ corner sharing tetrahedral units. The $[\text{PO}_2]$ tetrahedral units are provided by a variety of compositions including phosphoric acid, organic phosphates such as triethyl phosphate, and aluminophosphates. The $[\text{AlO}_2]$ tetrahedral units are provided by a variety of compositions including aluminum alkoxides such as aluminum isopropoxide, aluminum phosphates, aluminum hydroxide, sodium aluminate, and pseudoboehmite. The $[\text{SiO}_2]$ tetrahedral units are provided by a variety of compositions including silica sols and silicon alkoxides such as tetraethylorthosilicate and fumed silica.

[0004] Aluminophosphate (ALPO) molecular sieves are crystalline microporous oxides which can have an AlPO_4 framework. ALPOs can have additional elements within the framework, typically have uniform pore dimensions ranging from about 3 Angstroms to about 10 Angstroms.